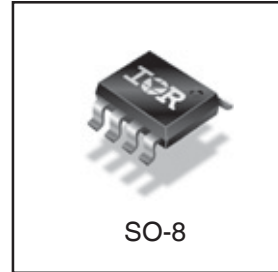
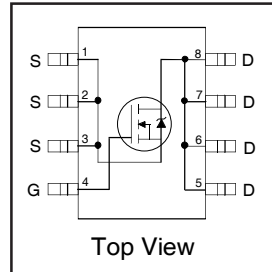


| | | |
|--------------------------------------------------|-----|------------|
| V_{DS} | 40 | V |
| $R_{DS(on) \text{ max}}$ (@ $V_{GS} = 10V$) | 17 | m Ω |
| $R_{DS(on) \text{ max}}$ (@ $V_{GS} = 4.5V$) | 21 | |
| Q_g (typical) | 15 | nC |
| I_D (@ $T_A = 25^\circ C$) | 9.0 | A |

HEXFET® Power MOSFET



Features

| |
|---------------------------------------------------|
| Industry-standard pinout SO-8 Package |
| Compatible with Existing Surface Mount Techniques |
| RoHS Compliant, Halogen-Free |
| MSL1, Industrial qualification |



Benefits

| |
|----------------------------|
| Multi-Vendor Compatibility |
| Easier Manufacturing |
| Environmentally Friendlier |
| Increased Reliability |

| Base Part Number | Package Type | Standard Pack | | Orderable Part Number |
|------------------|--------------|---------------|----------|-----------------------|
| | | Form | Quantity | |
| IRF7469PbF-1 | SO-8 | Tube/Bulk | 95 | IRF7469PbF-1 |
| | | Tape and Reel | 4000 | IRF7469TRPbF-1 |

Absolute Maximum Ratings

| Symbol | Parameter | Max. | Units |
|--------------------------|------------------------------------------|--------------|----------------|
| V_{DS} | Drain-Source Voltage | 40 | V |
| V_{GS} | Gate-to-Source Voltage | ± 20 | V |
| $I_D @ T_A = 25^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V$ | 9.0 | A |
| $I_D @ T_A = 70^\circ C$ | Continuous Drain Current, $V_{GS} @ 10V$ | 7.3 | |
| I_{DM} | Pulsed Drain Current ^① | 73 | |
| $P_D @ T_A = 25^\circ C$ | Maximum Power Dissipation ^③ | 2.5 | W |
| $P_D @ T_A = 70^\circ C$ | Maximum Power Dissipation ^③ | 1.6 | W |
| | Linear Derating Factor | 0.02 | mW/ $^\circ C$ |
| T_J, T_{STG} | Junction and Storage Temperature Range | -55 to + 150 | $^\circ C$ |

Thermal Resistance

| Symbol | Parameter | Typ. | Max. | Units |
|-----------------|----------------------------------|------|------|--------------|
| $R_{\theta JL}$ | Junction-to-Drain Lead | — | 20 | $^\circ C/W$ |
| $R_{\theta JA}$ | Junction-to-Ambient ^④ | — | 50 | |

Notes ① through ④ are on page 8

Static @ T_J = 25°C (unless otherwise specified)

| | Parameter | Min. | Typ. | Max. | Units | Conditions |
|----------------------------------------|--------------------------------------|------|------|------|-------|---------------------------------------------------------------------|
| V _{(BR)DSS} | Drain-to-Source Breakdown Voltage | 40 | — | — | V | V _{GS} = 0V, I _D = 250μA |
| ΔV _{(BR)DSS} /ΔT _J | Breakdown Voltage Temp. Coefficient | — | 0.04 | — | V/°C | Reference to 25°C, I _D = 1mA |
| R _{DS(on)} | Static Drain-to-Source On-Resistance | — | 12 | 17 | mΩ | V _{GS} = 10V, I _D = 9.0A ③ |
| | | — | 15.5 | 21 | | V _{GS} = 4.5V, I _D = 7.2A ③ |
| V _{GS(th)} | Gate Threshold Voltage | 1.0 | — | 3.0 | V | V _{DS} = V _{GS} , I _D = 250μA |
| I _{DSS} | Drain-to-Source Leakage Current | — | — | 20 | μA | V _{DS} = 32V, V _{GS} = 0V |
| | | — | — | 100 | | V _{DS} = 32V, V _{GS} = 0V, T _J = 125°C |
| I _{GSS} | Gate-to-Source Forward Leakage | — | — | 200 | nA | V _{GS} = 16V |
| | Gate-to-Source Reverse Leakage | — | — | -200 | | V _{GS} = -16V |

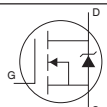
Dynamic @ T_J = 25°C (unless otherwise specified)

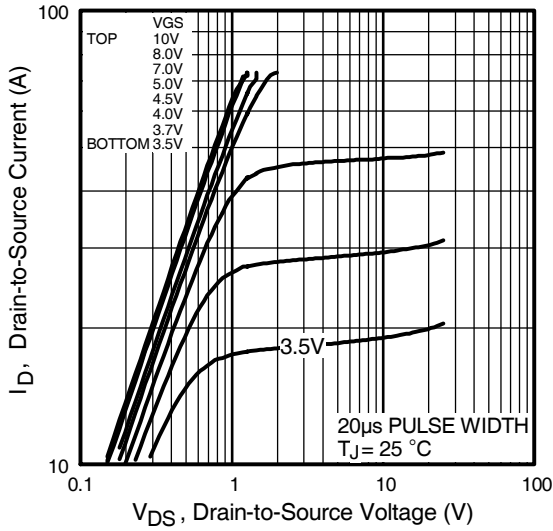
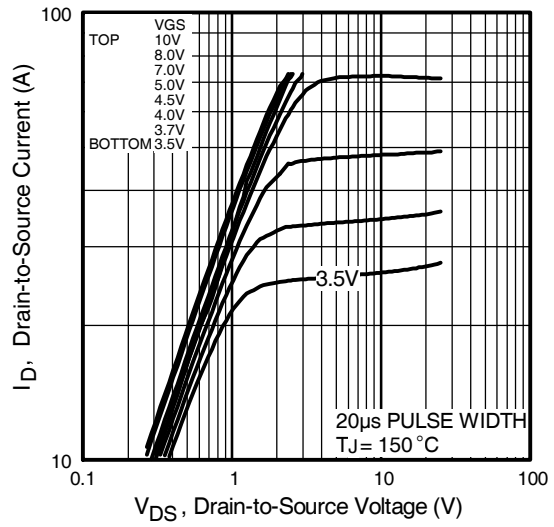
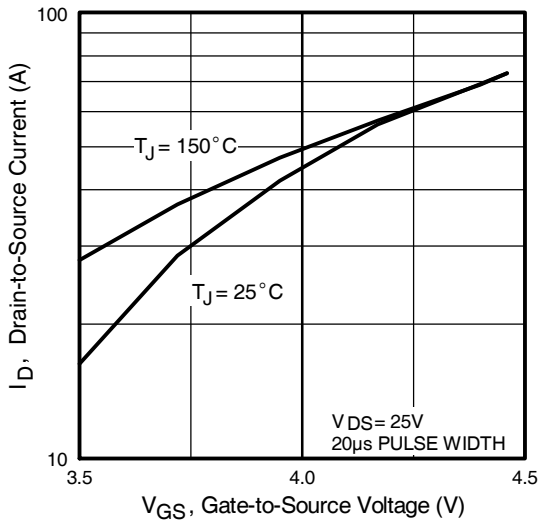
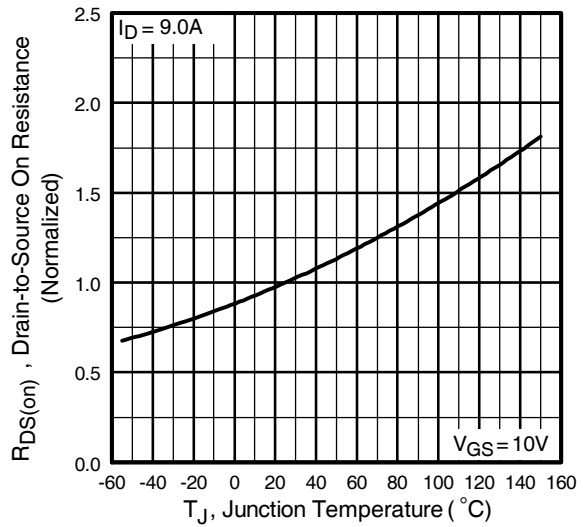
| Symbol | Parameter | Min. | Typ. | Max. | Units | Conditions |
|---------------------|---------------------------------|------|------|------|-------|----------------------------------------------|
| g _{fs} | Forward Transconductance | 17 | — | — | S | V _{DS} = 20V, I _D = 7.2A |
| Q _g | Total Gate Charge | — | 15 | 23 | nC | I _D = 7.2A |
| Q _{gs} | Gate-to-Source Charge | — | 7.0 | 11 | | V _{DS} = 20V |
| Q _{gd} | Gate-to-Drain ("Miller") Charge | — | 5.0 | 8.0 | | V _{GS} = 4.5V ③ |
| Q _{oss} | Output Gate Charge | — | 16 | 24 | | V _{GS} = 0V, V _{DS} = 16V |
| t _{d(on)} | Turn-On Delay Time | — | 11 | — | ns | V _{DD} = 20V |
| t _r | Rise Time | — | 2.2 | — | | I _D = 7.2A |
| t _{d(off)} | Turn-Off Delay Time | — | 14 | — | | R _G = 1.8Ω |
| t _f | Fall Time | — | 3.5 | — | | V _{GS} = 4.5V ③ |
| C _{iss} | Input Capacitance | — | 2000 | — | pF | V _{GS} = 0V |
| C _{oss} | Output Capacitance | — | 480 | — | | V _{DS} = 20V |
| C _{rss} | Reverse Transfer Capacitance | — | 28 | — | | f = 1.0MHz |

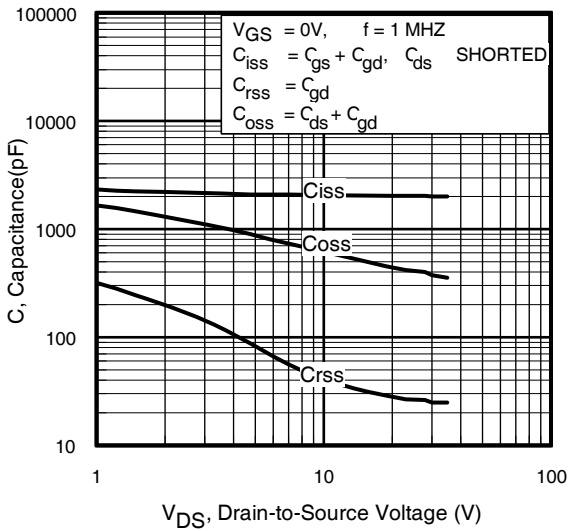
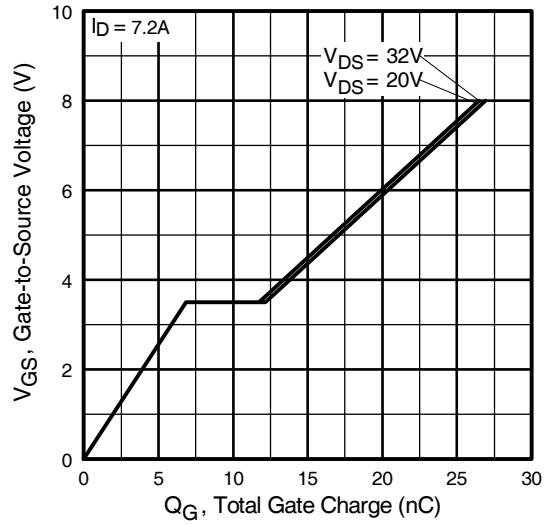
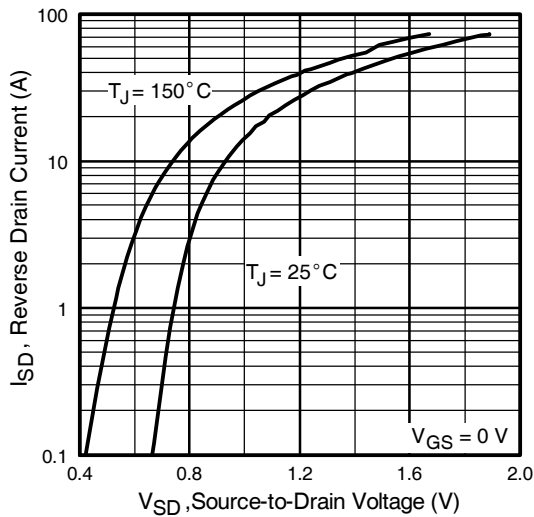
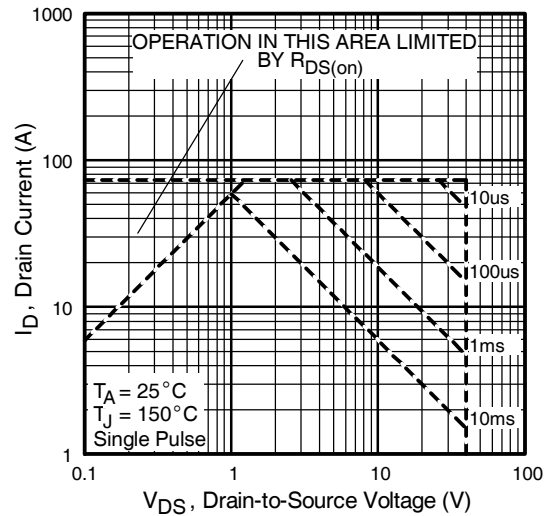
Avalanche Characteristics

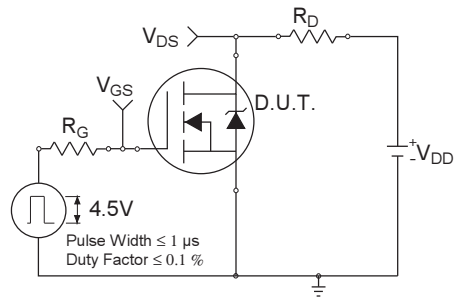
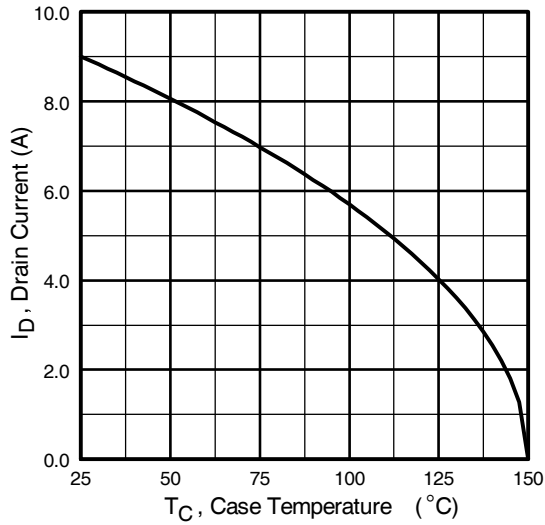
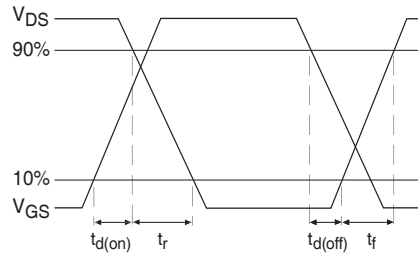
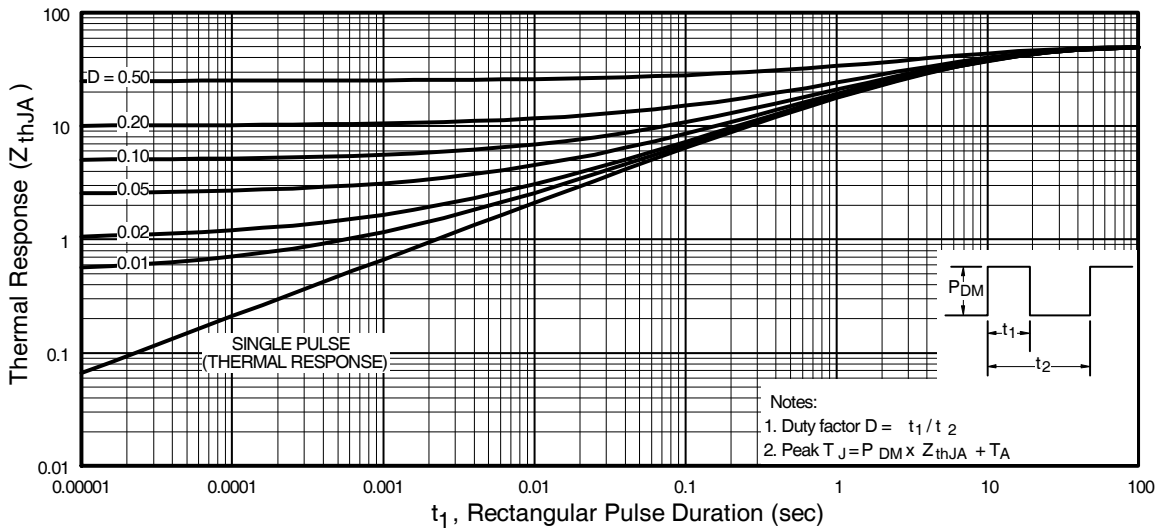
| Symbol | Parameter | Typ. | Max. | Units |
|-----------------|--------------------------------|------|------|-------|
| E _{AS} | Single Pulse Avalanche Energy② | — | 210 | mJ |
| I _{AR} | Avalanche Current① | — | 7.2 | A |

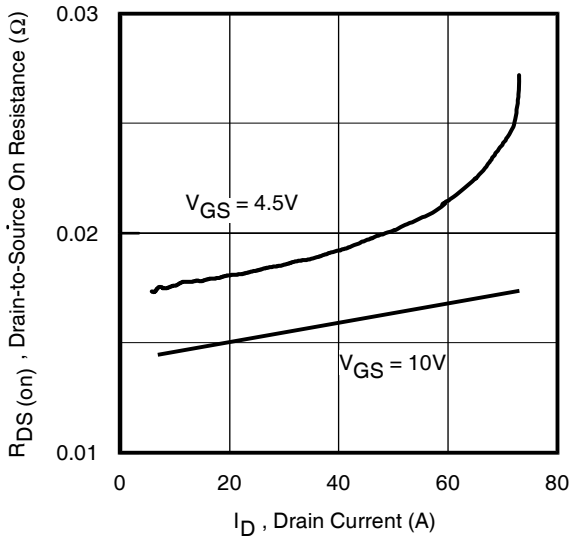
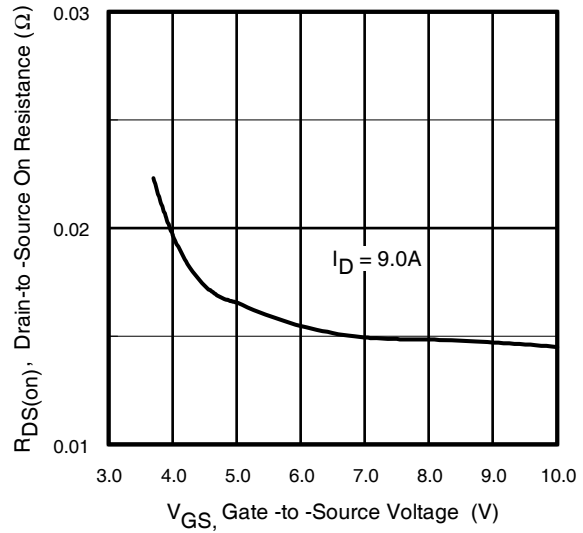
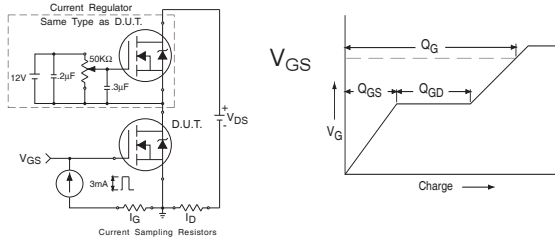
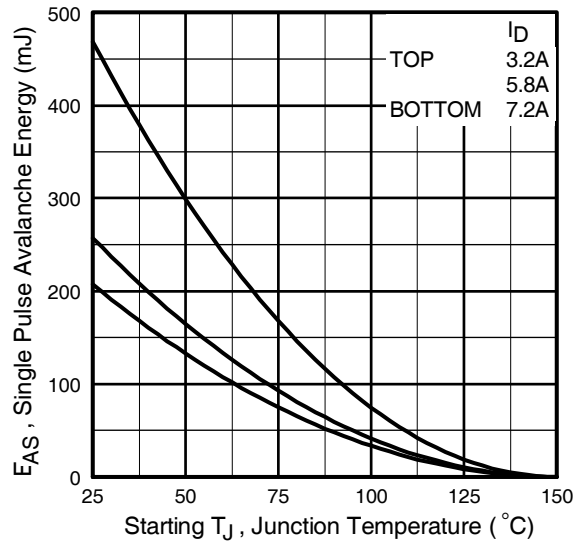
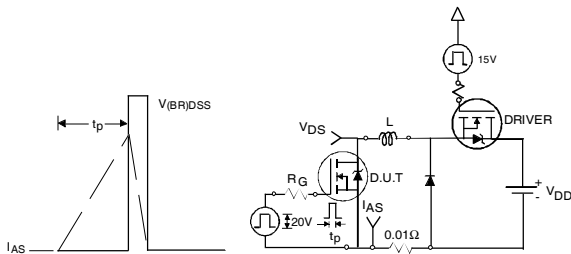
Diode Characteristics

| Symbol | Parameter | Min. | Typ. | Max. | Units | Conditions |
|-----------------|----------------------------------------|------|------|------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| I _S | Continuous Source Current (Body Diode) | — | — | 2.3 | A | MOSFET symbol showing the integral reverse p-n junction diode.  |
| I _{SM} | Pulsed Source Current (Body Diode) ① | — | — | 73 | | |
| V _{SD} | Diode Forward Voltage | — | 0.80 | 1.3 | V | T _J = 25°C, I _S = 7.2A, V _{GS} = 0V ③ |
| | | — | 0.65 | — | | T _J = 125°C, I _S = 7.2A, V _{GS} = 0V ③ |
| t _{rr} | Reverse Recovery Time | — | 47 | 71 | ns | T _J = 25°C, I _F = 7.2A, V _R = 15V |
| Q _{rr} | Reverse Recovery Charge | — | 91 | 140 | nC | di/dt = 100A/μs ③ |
| t _{rr} | Reverse Recovery Time | — | 77 | 120 | ns | T _J = 125°C, I _F = 7.2A, V _R = 20V |
| Q _{rr} | Reverse Recovery Charge | — | 150 | 230 | nC | di/dt = 100A/μs ③ |


Fig 1. Typical Output Characteristics

Fig 2. Typical Output Characteristics

Fig 3. Typical Transfer Characteristics

Fig 4. Normalized On-Resistance Vs. Temperature

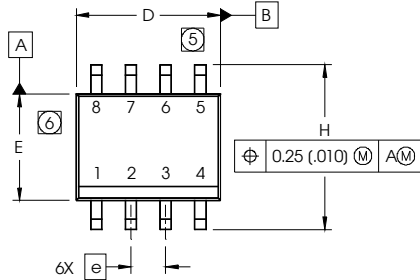

Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

Fig 7. Typical Source-Drain Diode Forward Voltage

Fig 8. Maximum Safe Operating Area


Fig 10a. Switching Time Test Circuit

Fig 10b. Switching Time Waveforms

Fig 10. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

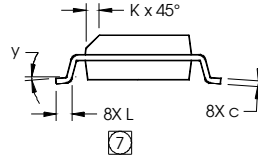
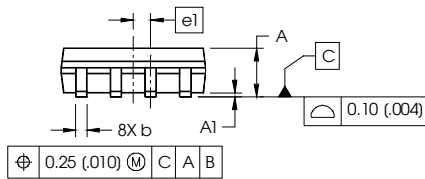

Fig 12. On-Resistance Vs. Drain Current

Fig 13. On-Resistance Vs. Gate Voltage

Fig 13a&b. Basic Gate Charge Test Circuit and Waveform

Fig 14c. Maximum Avalanche Energy Vs. Drain Current

Fig 14a&b. Unclamped Inductive Test circuit and Waveforms

SO-8 Package Outline (MOSFET & Fetky)

Dimensions are shown in millimeters (inches)

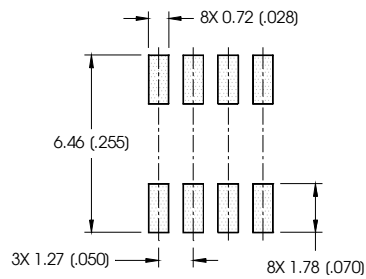


| DIM | INCHES | | MILLIMETERS | |
|-----|------------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | .0532 | .0688 | 1.35 | 1.75 |
| A1 | .0040 | .0098 | 0.10 | 0.25 |
| b | .013 | .020 | 0.33 | 0.51 |
| c | .0075 | .0098 | 0.19 | 0.25 |
| D | .189 | .1968 | 4.80 | 5.00 |
| E | .1497 | .1574 | 3.80 | 4.00 |
| e | .050 BASIC | | 1.27 BASIC | |
| e1 | .025 BASIC | | 0.635 BASIC | |
| H | .2284 | .2440 | 5.80 | 6.20 |
| K | .0099 | .0196 | 0.25 | 0.50 |
| L | .016 | .050 | 0.40 | 1.27 |
| y | 0° | 8° | 0° | 8° |



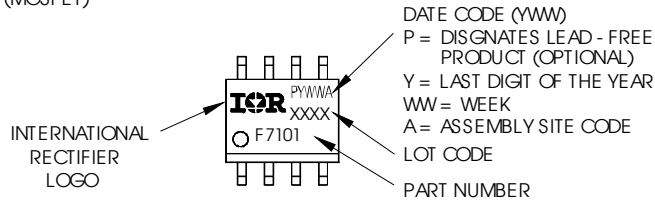
- NOTES:
1. DIMENSIONING & TOLERANCING PER ASME Y14.5M-1994.
 2. CONTROLLING DIMENSION: MILLIMETER
 3. DIMENSIONS ARE SHOWN IN MILLIMETERS (INCHES).
 4. OUTLINE CONFORMS TO JEDEC OUTLINE MS-012AA
 - ⑤ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.15 (.006).
 - ⑥ DIMENSION DOES NOT INCLUDE MOLD PROTRUSIONS. MOLD PROTRUSIONS NOT TO EXCEED 0.25 (.010).
 - ⑦ DIMENSION IS THE LENGTH OF LEAD FOR SOLDERING TO A SUBSTRATE.

FOOTPRINT



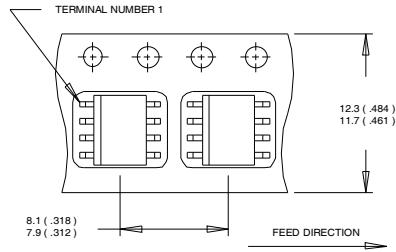
SO-8 Part Marking Information

EXAMPLE: THIS IS AN IRF7101 (MOSFET)

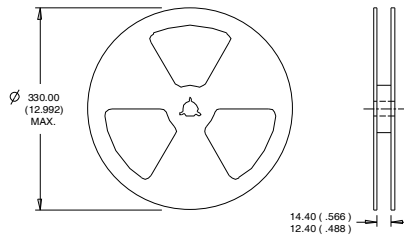


Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

SO-8 Tape and Reel (Dimensions are shown in millimeters (inches))



NOTES:
 1. CONTROLLING DIMENSION : MILLIMETER.
 2. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS(INCHES).
 3. OUTLINE CONFORMS TO EIA-481 & EIA-541.



NOTES :
 1. CONTROLLING DIMENSION : MILLIMETER.
 2. OUTLINE CONFORMS TO EIA-481 & EIA-541.

Note: For the most current drawing please refer to IR website at: <http://www.irf.com/package/>

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting $T_J = 25^\circ\text{C}$, $L = 8.1\text{mH}$, $R_G = 25\Omega$, $I_{AS} = 7.2\text{A}$.
- ③ Pulse width $\leq 400\mu\text{s}$; duty cycle $\leq 2\%$.
- ④ When mounted on 1 inch square copper board.

Qualification information[†]

| | | |
|----------------------------|-----------------------------------------------------------|-----------------------------------------------|
| Qualification level | IndustriD (per JEDEC JESD47F ^{††} guidelines) | |
| Moisture Sensitivity Level | SO-8 | MSL1 (per JEDEC J-STD-020D ^{††}) |
| RoHS compliant | Yes | |

[†] Qualification standards can be found at International Rectifier's web site: <http://www.irf.com/product-info/reliability>

^{††} Applicable version of JEDEC standard at the time of product release